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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 3

<b>Application Number</b>	09/833,222
<b>Filing Date</b>	April 11, 2001
<b>First Named Inventor</b>	QIN
<b>Group Art Unit</b>	
<b>Examiner Name</b>	
<b>Attorney Docket Number</b>	ORT-1414

## U.S. PATENT DOCUMENTS

[illegible]

## FOREIGN PATENT DOCUMENTS

[illegible]

Examiner Signature	<i>Anthony H. Chasen</i>	Date Considered	11-16-05
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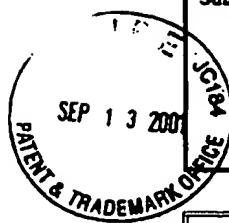
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 2 of 3

Application Number	09/833,222
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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS		
Examiner's Initials <sup>2</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITOL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
SJS	2	BEAN et al., 1989. Classes of Calcium Channels in Vertebrate Cells. Annu. Rev. Physiol. 51:367-84
	3	BERTOLINO et al., 1992. The Central Role of Voltage-Activated and Receptor-Operated Calcium Channels in Neuronal Cells. Annu. Rev. Pharmacol. Toxicol. 32:399-421
	4	BIRNBAUMER et al., 1998. Structures and Functions of Calcium Channel $\beta$ Subunits. Journal of Bioenergetics and Biomembranes. Vol. 30(4): 357-375
	5	CASTELLANO et al., 1993. Cloning and Expression of a Neuronal Calcium Channel $\beta$ Subunits. The Journal of Biological Chemistry. Vol. 268(17) Issue of June 15, pp. 12359-12366
	6	CASTELLANO et al., 1993. Cloning and Expression of a Third Calcium Channel $\beta$ Subunits. The Journal of Biological Chemistry. Vol. 268(5) Issue of February 15, pp. 3450-3455
	7	CATTERALL, 1988. Structure and Function of Voltage-Sensitive Ion Channels. Science, 242:50-61
	8	D'ANDREA et al., 1998. Characterization of Protease-activated Receptor-2 Immunoreactivity in Normal Human Tissues. The Journal of Histochemistry & Cytochemistry. 46(2):157-164
	9	ELLIS et al., 1988. Sequence and Expression of mRNAs Encoding the $\alpha_1$ and $\alpha_2$ Subunits of a DHP-Sensitive Calcium Channel. Science. 241:1661-1664
	10	ERTEL et al., 2000. Nomenclature of Voltage-Gated Calcium Channels. Neuron. 25:533-535
	11	FELEX et al., 1997. Dissection of Functional Domains of the Voltage-Dependent $Ca^{2+}$ Channel $\alpha_2\delta$ Subunit. The Journal of Neuroscience. 17(18):6884-6891
	12	GEE et al., 1996. The Novel Anticonvulsant Drug, Gabapentin (Neurontin), Binds to the $\alpha_2\delta$ Subunit of a Calcium Channel. 271(10), Issue of March 8, pp. 5768-5776
	13	GILAD et al., 1995. Identification of the alternative spliced form of the $\alpha_2\delta$ subunit of voltage sensitive $Ca^{2+}$ channels expressed in PC12 cells. Neuroscience Letters. 193:157-160
	14	GURNETT et al., 1996. Transmembrane auxiliary Subunits of Voltage-dependent Ion Channels. The Journal of Biological Chemistry. 271(45), Issue of November 8, pp. 27975-27978
	15	GURNETT et al., 1996. Dual Function of the Voltage-Dependent $Ca^{2+}$ Channel $\alpha_2\delta$ Subunit in Current Stimulation and Subunit Interaction. Neuron. 16:431-440
SJS	16	HESS, 1990. Calcium Channels in Vertebrate Cells. Annu. Rev. Neurosci. 13:357-56
	17	MOSBY et al., L-Type Calcium Channels in Cardiac and Skeletal Muscle Purification and Phosphorylation. Annu. New York Academy of Sciences. pp. 27-38
SJS	18	HUI et al., 1991. Molecular Cloning of Multiple Subtypes of a Novel Rat Brain Isoform of the $\alpha_1$ Subunit of the Voltage-Dependent Calcium Channel. Neuron. 7:35-44
	19	JAY et al., 1990. Primary Structure of the $\gamma$ Subunit of the DHP-Sensitive Calcium Channel from Skeletal Muscle. Science. 248:490-492
	20	KLUGBAUER et al., 1999. Molecular Diversity of the Calcium Channel $\alpha_2\delta$ Subunit. The Journal of Neuroscience. 19(2):684-691
	21	KOZAK, 1991. An analysis of Vertebrate mRNA Sequences: Intimations of Translational Control. The Journal of Cell Biology. 115(4):887-903
	22	LACERAD et al., 1991. Normalization of current kinetics by interaction between the $\alpha_1$ and $\beta$ subunits of the skeletal muscle dihydropyridine-sensitive $Ca^{2+}$ channel. Nature. 352:527-530
	23	LEE et al., 1999. Cloning and Expression of a Novel Member of the Low Voltage-Activated T-Type Calcium Channel Family. The Journal of Neuroscience. 19(6):1912-1921
	24	LITTLETON et al., 2000. Ion Channels and Synaptic Organization: Analysis of the Drosophila Genome. Neuron. 26:35-43
	25	MIKAMI et al., 1989. Primary structure and functional expression of the cardiac dihydropyridine-sensitive calcium channel. Nature. 340:230-233
	26	MORI et al., 1991. Primary structure and functional expression from complementary DNA of a brain calcium channel. Nature. 350:398-402
	27	PEREZ-REYES et al., 1989. Induction of calcium currents by the expression of the $\alpha_1$ -subunit of the dihydropyridine receptor from skeletal muscle. Nature. 340:233-236
SJS	28	PEREZ-REYES et al., 1992. Cloning and Expression of a Cardiac/Brain $\beta$ Subunit of the L-type Calcium Channel. The Journal of Biological Chemistry. 267(3) Issue of January 25, pp. 1792-1797

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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## OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner's Initials*	Cite No.	Include name of the author (in CAPITOL LETTERS), title of the article (when appropriate), date of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published
JKS	29	PEREZ-REYES et al., 1998. Molecular characterization of a neuronal low-voltage-activated T-type calcium channel. Nature 391:896-900
	30	PRAGNELL et al., 1991. Cloning and tissue-specific expression of the brain calcium channel $\beta$ -subunit. Federation of European Biochemical Societies. 291(2):253-258
JKS	31	QIN et al., 1997. Direct interaction of G $\beta\gamma$ with a C-terminal G $\beta\gamma$ -binding domain of the Ca $^{2+}$ channel $\alpha_1$ subunit is responsible for channel inhibition by G protein-coupled receptors. Proc. Natl. Acad. Sci. USA. 94:8866-8871
	32	QIN et al., 1998. Modulation of human neuronal $\alpha_1$ -type calcium channel by $\alpha_2\delta$ subunit. American Physiological Society. 1324-1331
JKS	33	RANDALL et al., 1995. Pharmacological Dissection of Multiple Types of Ca $^{2+}$ Channel Currents in Rat Cerebellar Granule Neurons. The Journal of Neuroscience. 15(4):2995-3012
	34	ROCK et al., 1993. Gabapentin actions on ligand- and voltage-gated responses in cultured rodent neurons. Epilepsy Research. 16:89-98
	35	RUTH et al., 1989. Primary Structure of the $\beta$ Subunit of the DHP-Sensitive Calcium Channel from Skeletal Muscle. Science. 245:1115-1118
	36	SANFORD et al., 1991. $\gamma$ -Subunits of G Proteins, but not Their $\alpha$ - or $\beta$ -Subunits, are Polyisoprenylated. The Journal of Biological Chemistry. 266(15) Issue of May 25, pp. 8570-8579
	37	SNUTCH et al., 1990. Rat brain expresses a heterogeneous family of calcium channels. Proc. Natl. Acad. Sci. USA. Neurobiology. 87:3391-3395
	38	TANABE et al., 1987. Primary structure of the receptor for calcium channel blockers from skeletal muscle. Nature. 328:313-318
	39	TANABE et al., 1988. Restoration of excitation-contraction coupling and slow calcium current in myogenic muscle by dihydropyridine receptor complementary DNA. Nature. 336:134-139
	40	TOKUMARU et al., 1995. A Calcium Channel from the Presynaptic Nerve Terminal of the Narke Japanese Electric Organ Contains a Non-N-Type $\alpha_2\delta$ subunit. Journal of Neurochemistry. 65(2):831-836
	41	WILLIAMS et al., 1992. Structure and Functional Expression of an $\omega$ -Conotoxin-Sensitive Human N-Type Calcium Channel. Science. 257:389-395
	42	WISER et al., 1996. The $\alpha_2\delta$ subunit of voltage sensitive Ca $^{2+}$ Channels is a single transmembrane extracellular protein which is involved in regulated secretion. FEBS Letters 379:15-20
JKS	43	WITCHER et al., 1993. Subunit Identification and Reconstitution of the N-Type Ca $^{2+}$ Channel Complex Purified from Brain. Science. 261:486-489

Examiner Signature	<i>Julius H. Johnson</i>	Date Considered	11-16-05
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